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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TODD L. LYDIC, TAMO BIANCHI and JAMES A. DECKER

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Appeal 2007-1462  
Application 09/664,118  
Technology Center 3600

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Decided: February 27, 2008

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Before WILLIAM F. PATE, III, HUBERT C. LORIN, and  
ANTON W. FETTING, Administrative *Patent Judges*.

PATE, III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

This is an appeal from the final rejection of claims 1-20. These are the only claims remaining in the application.

We have jurisdiction over the appeal pursuant to 35 U.S.C. §§ 6 and 134.

The claimed invention is directed to a rail car having an underbody which includes a sill that extends the length of the rail car. The invention resides in the fact that the sill is cold formed.

Claim 1, reproduced below, is further illustrative of the claimed subject matter.

1. A rail car comprising:

a plurality of truck assemblies, each truck assembly having at least one wheel

an underbody supported on said truck assemblies, said underbody including a cold formed center sill extending substantially the length of said railcar; and

a railcar body attached to said underbody.

The references of record relied upon by the examiner as evidence of obviousness are:

Weiss

US 5,367,958

Nov. 29, 1994

*The Making, Shaping, and Treating of Steel*, Chapter 19, Plastic Deformation of Steel, pages 385-390.

## REJECTIONS

Claims 1-20 stand rejected under 35 U.S.C. § 103 as unpatentable over Weiss in view of the Chapter 19 excerpt cited by the examiner.

## ISSUE

The sole issue on appeal is whether the Appellants have established that the Examiner erred in rejecting claims 1-20 on the ground of obviousness.

### FINDINGS OF FACT

The patent to Weiss discloses a railcar having a plurality of truck assemblies 14, each truck assembly having a plurality of wheels. See column 2, line 9. An underbody, comprised of a center sill 16, extends the length of the railcar. See column 2, lines 9-12 and 20-24. The center sill disclosed in Weiss “is fabricated from steel or other suitable *strong* load bearing material (emphasis supplied).” *Id.* A railcar body is attached to the center sill. Weiss is silent as to the manner in which the center sill is fabricated. Appellants have stated that it is well known in the art to fabricate the center sill of a box car either by hot rolling an open box beam or building a center sill by welding from flat steel plates. Brief 8: 25, 26. We credit this assertion by Appellants.

The Examiner has also cited Chapter 19 of *The Making, Shaping and Treating of Steel*, a well-known handbook dealing with steel fabrication and use. Specifically, the Examiner cites Section 3 of Chapter 19 where cold working of steel is described. On page 390, this reference work states that the overall effect of cold work on steel is “to increase its strength and hardness and decrease its ductility.” The reference also states that cold working is employed to obtain the following effects: “improved mechanical properties; better machinability; special size accuracy; bright surface and the production of thinner gages that hot working cannot accomplish economically.”

Appellants have attached to the brief, a printed-out copy of Chapter 25 of the same reference book. This chapter is concerned with rolling other structural shapes over and above the common structural sections such as

channels, angles, and wide flange beams. One of the special structural shapes mentioned in Chapter 25, specifically on page 28 as attached to the Appendix, is a zee bar used for fabricating the center sill of railroad cars. The zee bars fabricated by this hot rolling process are connected with one long centerline weld to form a box section with outwardly extending bottom flanges. We fully credit Appellants' argument that chapter 25 describes the hitherto prior art method of hot rolling center sill beams for rail cars.

#### PRINCIPAL OF LAW

A claimed invention is unpatentable if the differences between it and the prior art are "such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (2000); *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 13-14 (1966).

In *Graham*, the Court held that that the obviousness analysis is bottomed on several basic factual inquiries: "[ (1) ] the scope and content of the prior art are to be determined; [ (2) ] differences between the prior art and the claims at issue are to be ascertained; and [ (3) ] the level of ordinary skill in the pertinent art resolved." 383 U.S. at 17. *See also KSR Int'l v. Teleflex Inc.*, 127 S.Ct. at 1734. "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739.

While there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and

creative steps that a person of ordinary skill in the art would employ.” *KSR* 127 S.Ct. at 1741.

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

*Id.*, at 1740. We must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.*

Appellant argues that there is no teaching, suggestion, or motivation (TSM) for the combination of references. However, in *KSR* the Supreme Court held that a rigid application of such a mandatory formula as TSM was incompatible with its precedent concerning obviousness. See *KSR* at 1741.

## ANALYSIS

In view of the chapter 19 teaching that the overall effect of cold work on steel is to increase its strength and hardness and decrease its ductility, it is our view that the applied prior art renders the subject matter of claims 1, 3, and 6-10 *prima facie* obvious. Cold work or cold forming is merely a known work in one field of endeavor that would prompt variations of its use in a different field, that is, railroad car construction, based on the design

incentives of increased strength and hardness and decreased ductility, and based on the predictability of these features to one of ordinary skill in the art. This is especially true since the Weiss patent states the need for a “*strong* load bearing material (emphasis supplied)” as the center sill.

Appellants argue on page 11 of the Brief that *The Making, Shaping, and Treating of Steel* reference expressly teaches away from the suggested modification. This is not true. For the reference to teach away, it would have to expressly state that one cannot fabricate a sill of a railroad car from a cold rolled section. Instead, the reference merely teaches that heretofore, sills used in rail cars have been hot rolled. Appellants argue that the Examiner’s combination of references disregards the explicit teachings of the secondary reference. Again, we cannot agree. In fact, the secondary reference at page 390 suggests desirable properties of cold rolled steel.

With regard to claim 3, Weiss teaches a sill with a hollow rectangular configuration and open bottom. With respect to claim 7, as we understand the claim, a center sill comprised of one cold rolled section with no weld would satisfy the last limitation. As noted above with respect to claim 1, such a center sill would have been obvious to one of ordinary skill. Our construction of this claim is confirmed by the limitation of claim 8.

With respect to claims 2 and 18-20, we are in agreement with Appellants that the applied art does not teach cold forming the beam of exactly two pieces and welding the cold rolled sections together. In our view, it would not be predictable as to what effect the welding would have on the cold rolled structure of the beam. For example, the welding could introduce local annealing which would be deleterious to the properties of the

cold rolled sill. Likewise, we will not affirm the rejection of claim 4, 5 and 11-17. The prior art does not teach these exact properties or dimensions of the cold rolled sill.

The Reply Brief discusses whether there is more than one method disclosed for making rail car sills in the *Making, Shaping and Treating of Steel* reference. We agree with Appellants that chapter 25 discloses making the sills of hot rolled steel. Appellants admit that chapter 19 teaches using cold forming for smaller mechanical struts and framing members, and Appellants confirmed that this was true at oral hearing. In our view, the fact that modern presses were unable to cold roll steel of section sizes necessary for a railroad car sill until recently is not determinative of nonobviousness. The question is whether, when such mills became available, would it have been obvious to use such a mill to cold roll the sill for a railroad car. In *Leapfrog Enterprises Inc. v. Fisher-Price Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) the question arose as to whether an electronic device could be updated using modern electronic components in order to gain commonly understood benefits. In this post *KSR* case, the Federal Circuit recognized that it was obvious to use updated components and methods if they were used in a predictable manner. Inasmuch as a person of ordinary skill is a person of creativity and not an automaton, the use of cold rolled steel is

simply the use of a recently available, known technique to improve similar devices, methods or products in the same way that cold rolled steel is used to improve the properties of smaller sections.



We have not considered the Ragsdale and Ridgeway patents that the Appellants discuss in the Reply Brief.

#### CONCLUSION

The rejection of claims 1, 3, and 6-10 is affirmed.

The rejection of claims 2, 4, 5, and 11-20 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

#### AFFIRMED-IN-PART

vsh

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